



AHEAD OF WHAT'S POSSIBLE™

# DISPLACEMENT DAMAGE TEST REPORT AD8041S

January 2023



## Radiation Test Report

Product:	AD8041S
Die:	8041
Fluence:	2e12 n/cm <sup>2</sup>
Test Method:	MIL-STD-883 TM1017
Facilities:	UMass Lowell
Tested:	January 5, 2023

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Wafer #	SN	Supply Current Vs=+/-2.5V (A)			VOS Vs=+/-2.5V (V)		
		Pre	1.00E+12	2.00E+12	Pre	1.00E+12	2.00E+12
<b>CTRL</b>	19	5.27E-03	5.28E-03	5.28E-03	1.67E-03	1.66E-03	1.67E-03
	19	5.25E-03	5.26E-03	5.25E-03	2.79E-03	2.82E-03	2.86E-03
	8	5.15E-03	5.15E-03	5.15E-03	5.36E-04	6.10E-04	6.18E-04
	10	5.16E-03	5.16E-03	5.17E-03	4.34E-03	4.48E-03	4.55E-03
	11	5.18E-03	5.19E-03	5.20E-03	4.54E-03	4.46E-03	4.39E-03
	12	5.10E-03	5.11E-03	5.10E-03	2.01E-03	1.96E-03	1.98E-03
	13	5.23E-03	5.24E-03	5.24E-03	4.37E-03	4.36E-03	4.47E-03
	14	5.10E-03	5.09E-03	5.09E-03	8.68E-04	8.02E-04	7.22E-04
	15	5.16E-03	5.16E-03	5.16E-03	1.98E-03	1.97E-03	1.98E-03
	16	5.22E-03	5.23E-03	5.23E-03	2.72E-03	2.68E-03	2.77E-03
17	5.18E-03	5.19E-03	5.19E-03	3.23E-03	3.29E-03	3.33E-03	
<b>min</b>		5.10E-03	5.09E-03	5.09E-03	5.36E-04	6.10E-04	6.18E-04
<b>max</b>		5.25E-03	5.26E-03	5.25E-03	4.54E-03	4.48E-03	4.55E-03
<b>mean</b>		5.17E-03	5.18E-03	5.18E-03	2.74E-03	2.74E-03	2.77E-03
<b>std. dev</b>		5.00E-05	5.42E-05	5.48E-05	1.42E-03	1.43E-03	1.45E-03
<b>mean - 3 sigma</b>		5.02E-03	5.02E-03	5.01E-03	-1.52E-03	-1.55E-03	-1.60E-03
<b>mean +3 sigma</b>		5.32E-03	5.34E-03	5.34E-03	7.00E-03	7.04E-03	7.13E-03

Wafer #	SN	Positive Output Voltage Swing RI=1k (V)			Negative Output Voltage Swing RI=1k (V)		
		Pre	1.00E+12	2.00E+12	Pre	1.00E+12	2.00E+12
<b>CTRL</b>	19	2.4426	2.4430	2.4428	-2.4481	-2.4483	-2.4482
	8	2.4425	2.4457	2.4471	-2.4489	-2.4511	-2.4516
	10	2.4427	2.4457	2.4470	-2.4491	-2.4510	-2.4515
	11	2.4431	2.4461	2.4475	-2.4488	-2.4509	-2.4514
	12	2.4425	2.4455	2.4466	-2.4483	-2.4501	-2.4506
	13	2.4427	2.4457	2.4468	-2.4486	-2.4504	-2.4508
	14	2.4426	2.4455	2.4468	-2.4486	-2.4505	-2.4510
	15	2.4430	2.4459	2.4471	-2.4497	-2.4512	-2.4517
	16	2.4424	2.4452	2.4464	-2.4488	-2.4506	-2.4511
	17	2.4419	2.4450	2.4464	-2.4485	-2.4506	-2.4511
	18	2.4423	2.4455	2.4467	-2.4486	-2.4506	-2.4511
<b>min</b>		2.4419	2.4450	2.4464	-2.4497	-2.4512	-2.4517
<b>max</b>		2.4431	2.4461	2.4475	-2.4483	-2.4501	-2.4506
<b>mean</b>		2.4426	2.4456	2.4469	-2.4488	-2.4507	-2.4512
<b>std. dev</b>		0.0003	0.0003	0.0003	0.0004	0.0003	0.0004
<b>mean - 3 sigma</b>		2.4415	2.4446	2.4458	-2.4500	-2.4517	-2.4523
<b>mean +3 sigma</b>		2.4436	2.4466	2.4479	-2.4476	-2.4497	-2.4501

Wafer #	SN	Positive Output Voltage Swing RI=50 (V)			Negative Output Voltage Swing RI=50 (V)		
		Pre	1.00E+12	2.00E+12	Pre	1.00E+12	2.00E+12
<b>CTRL</b>	19	2.0750	2.0776	2.0763	-2.2605	-2.2617	-2.2611
	8	2.0699	2.0703	2.0680	-2.2596	-2.2600	-2.2591
	10	2.0729	2.0729	2.0708	-2.2594	-2.2594	-2.2585
	11	2.0735	2.0733	2.0708	-2.2599	-2.2600	-2.2590
	12	2.0602	2.0602	2.0575	-2.2573	-2.2574	-2.2563
	13	2.0754	2.0755	2.0727	-2.2599	-2.2599	-2.2587
	14	2.0616	2.0620	2.0592	-2.2577	-2.2579	-2.2567
	15	2.0632	2.0634	2.0607	-2.2586	-2.2587	-2.2575
	16	2.0614	2.0615	2.0588	-2.2575	-2.2576	-2.2564
	17	2.0776	2.0777	2.0750	-2.2607	-2.2608	-2.2597
	18	2.0767	2.0766	2.0742	-2.2603	-2.2603	-2.2593
<b>min</b>		2.0602	2.0602	2.0575	-2.2607	-2.2608	-2.2597
<b>max</b>		2.0776	2.0777	2.0750	-2.2573	-2.2574	-2.2563
<b>mean</b>		2.0692	2.0693	2.0668	-2.2591	-2.2592	-2.2581
<b>std. dev</b>		0.0070	0.0069	0.0070	0.0012	0.0012	0.0013
<b>mean - 3 sigma</b>		2.0484	2.0487	2.0459	-2.2628	-2.2629	-2.2619
<b>mean +3 sigma</b>		2.0901	2.0900	2.0877	-2.2554	-2.2556	-2.2543

Wafer #	SN	+Ibias Vs=+/-2.5V (A)			-Ibias Vs=+/-2.5V (A)		
		Pre	1.00E+12	2.00E+12	Pre	1.00E+12	2.00E+12
<b>CTRL</b>	19	-1.25E-06	-1.26E-06	-1.26E-06	-1.10E-06	-1.10E-06	-1.10E-06
	8	-1.27E-06	-1.29E-06	-1.28E-06	-9.84E-07	-9.80E-07	-9.76E-07
	10	-1.24E-06	-1.25E-06	-1.26E-06	-1.21E-06	-1.20E-06	-1.20E-06
	11	-1.23E-06	-1.24E-06	-1.27E-06	-8.30E-07	-8.15E-07	-8.08E-07
	12	-1.25E-06	-1.26E-06	-1.26E-06	-8.10E-07	-8.17E-07	-8.24E-07
	13	-1.18E-06	-1.19E-06	-1.18E-06	-1.06E-06	-1.07E-06	-1.06E-06
	14	-1.25E-06	-1.26E-06	-1.27E-06	-8.28E-07	-8.27E-07	-8.16E-07
	15	-1.25E-06	-1.26E-06	-1.31E-06	-1.18E-06	-1.18E-06	-1.19E-06
	16	-1.25E-06	-1.28E-06	-1.27E-06	-1.07E-06	-1.07E-06	-1.06E-06
	17	-1.22E-06	-1.25E-06	-1.25E-06	-9.93E-07	-9.96E-07	-9.86E-07
	18	-1.22E-06	-1.25E-06	-1.27E-06	-9.43E-07	-9.34E-07	-9.30E-07
<b>min</b>		-1.27E-06	-1.29E-06	-1.31E-06	-1.21E-06	-1.20E-06	-1.20E-06
<b>max</b>		-1.18E-06	-1.19E-06	-1.18E-06	-8.10E-07	-8.15E-07	-8.08E-07
<b>mean</b>		-1.24E-06	-1.25E-06	-1.26E-06	-9.91E-07	-9.89E-07	-9.86E-07
<b>std. dev</b>		2.62E-08	2.64E-08	3.16E-08	1.42E-07	1.43E-07	1.45E-07
<b>mean - 3 sigma</b>		-1.31E-06	-1.33E-06	-1.36E-06	-1.42E-06	-1.42E-06	-1.42E-06
<b>mean +3 sigma</b>		-1.16E-06	-1.17E-06	-1.17E-06	-5.65E-07	-5.59E-07	-5.50E-07

Wafer #	SN	Ios Vs=+/-2.5V (A)			AVO Vs=+/-2.5V RI=1k (kV/V)		
		Pre	1.00E+12	2.00E+12	Pre	1.00E+12	2.00E+12
<b>CTRL</b>	19	-1.49E-07	-1.66E-07	-1.59E-07	74.19	73.93	74.63
	8	-2.90E-07	-3.05E-07	-3.04E-07	77.49	72.92	70.22
	10	-3.02E-08	-5.18E-08	-6.35E-08	75.27	71.96	67.10
	11	-3.97E-07	-4.30E-07	-4.59E-07	79.00	75.95	76.48
	12	-4.37E-07	-4.42E-07	-4.33E-07	76.11	75.78	70.96
	13	-1.15E-07	-1.22E-07	-1.18E-07	74.48	71.04	70.85
	14	-4.22E-07	-4.36E-07	-4.53E-07	77.50	75.72	72.55
	15	-7.11E-08	-7.75E-08	-1.16E-07	73.29	68.54	70.40
	16	-1.83E-07	-2.15E-07	-2.10E-07	71.41	68.50	72.08
	17	-2.27E-07	-2.55E-07	-2.69E-07	75.71	82.37	74.14
	18	-2.73E-07	-3.14E-07	-3.42E-07	73.41	74.67	74.88
<b>min</b>		-4.37E-07	-4.42E-07	-4.59E-07	71.41	68.50	67.10
<b>max</b>		-3.02E-08	-5.18E-08	-6.35E-08	79.00	82.37	76.48
<b>mean</b>		-2.45E-07	-2.65E-07	-2.77E-07	75.37	73.75	71.97
<b>std. dev</b>		1.46E-07	1.47E-07	1.47E-07	2.30	4.13	2.70
<b>mean - 3 sigma</b>		-6.82E-07	-7.07E-07	-7.18E-07	68.47	61.34	63.88
<b>mean +3 sigma</b>		1.93E-07	1.78E-07	1.65E-07	82.26	86.15	80.06

Wafer #	SN	CMRR Vcm=-1V to 2.5V (dB)			PSRR Vs=+/-2.5V to +/-5V (dB)		
		Pre	1.00E+12	2.00E+12	Pre	1.00E+12	2.00E+12
<b>CTRL</b>	19	81.44	81.48	81.55	94.63	94.61	94.90
	8	89.02	89.77	88.90	89.23	89.27	89.19
	10	83.52	84.11	84.27	112.32	126.29	150.01
	11	83.85	84.51	84.06	85.98	86.09	85.86
	12	83.60	83.54	83.57	86.33	86.08	86.11
	13	86.92	87.79	88.33	91.70	91.80	91.76
	14	89.05	89.21	89.93	85.31	85.46	86.02
	15	87.28	87.70	85.87	98.44	99.65	97.50
	16	86.41	85.94	85.97	92.05	91.96	91.99
	17	85.46	85.55	85.14	90.74	90.94	90.92
	18	93.73	93.18	93.93	89.28	89.41	89.56
<b>min</b>		83.52	83.54	83.57	85.31	85.46	85.86
<b>max</b>		93.73	93.18	93.93	112.32	126.29	150.01
<b>mean</b>		86.88	87.13	87.00	92.14	93.70	95.89
<b>std. dev</b>		3.16	3.01	3.26	8.06	12.17	19.34
<b>mean - 3 sigma</b>		77.40	78.11	77.22	67.97	57.18	37.86
<b>mean +3 sigma</b>		96.37	96.15	96.77	116.31	130.21	153.92

Wafer #	SN	Disable Current Vs=+/-2.5V (A)		
		Pre	1.00E+12	2.00E+12
<b>CTRL</b>	19	0.00147	0.00147	0.00147
	8	0.00148	0.00148	0.00148
	10	0.00146	0.00146	0.00146
	11	0.00146	0.00146	0.00146
	12	0.00145	0.00144	0.00144
	13	0.00143	0.00143	0.00143
	14	0.00146	0.00146	0.00146
	15	0.00144	0.00144	0.00144
	16	0.00144	0.00144	0.00144
	17	0.00146	0.00146	0.00146
	18	0.00146	0.00145	0.00145
<b>min</b>		0.00143	0.00143	0.00143
<b>max</b>		0.00148	0.00148	0.00148
<b>mean</b>		0.00145	0.00145	0.00145
<b>std. dev</b>		0.00001	0.00001	0.00001
<b>mean - 3 sigma</b>		0.00141	0.00141	0.00141
<b>mean +3 sigma</b>		0.00149	0.00149	0.00149



